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The plates include photographic studies of the trunks and drawings of the leaves and fruit.

The forests dominated by members of the Dipterocarpaceae are by far the most important both in extent and in volume of merchantable timber. The composition of these forests is a simple one from the forester's or lumberman's standpoint, a given area seldom having more than 15 or 20 species of economic importance; and in the most productive of the dipterocarp forests, known as the lauan type, 95 per cent of the timber belongs to 6 dominant species. The same forest is complex from the standpoint of the botanist, since it contains 150-200 tree species, the greater number being too small to be economically important. Once within the tangled mass of lianas about the openings, these forests are easy to penetrate.

In addition to an abundance of timber for general construction purposes, these forests produce excellent substitutes for mahogany and lignum vitae, many valuable furniture woods, and woods suitable for carving, engraving, and numerous other purposes. Among the other forest products are resins, oils, rubber, rattan, and bamboo. Lumbering methods have been largely primitive, but these are being replaced by more scientific ones, which promise to produce not only all the timber required for use upon the islands, but considerable quantities for export.—GEO. D. FULLER.

**African sand dunes.**—The vegetation of a narrow border of sand dunes along the shores of the Bay of Algiers has been described by DUCELLIER.<sup>14</sup> An annual rainfall of over 60 cm., well distributed throughout the year, with a maximum in November and December, and a minimum in July and August, together with a mean temperature ranging from 5° C. in January to 30° C. in August, produces an evergreen vegetation with hardly a cessation of flowers throughout the year. Three distinct bands of vegetation correspond to three distinct topographic zones running parallel with the shore. First is the fore-dune, with a vegetation characterized by the abundance of annuals and grasses of the usual type, belonging to such well known genera as *Salsola*, *Cakile*, *Silene*, *Euphorbia*, and *Ammophila*. Within this comes a depression termed "bande humide," apparently the same as the "pannes" of European ecologists. Here the vegetation is a mixture of xerophytes, mesophytes, and such hydrophytic forms as species of *Juncus*, *Scirpus*, *Orchis*, *Typha*, and *Nerium*.

In the inland portion of the area there appear to be few dunes of any considerable size. The plants conspicuous in the fixation of the dunes are *Lotus creticus*, *Scabiosa rutaefolia*, and *Pistacia Lentiscus*, while the established dunes are occupied by *Olea europea*, *Pinus halepensis*, *Phillyrea media*, and a considerable number of shrubs and herbs mostly of decidedly xerophytic structure. Among the prominent families represented in the lists of species are the legumes

<sup>14</sup> DUCELLIER L., Étude phytogéographique des dunes de la Baie d'Alger. Rev. Gén. Bot. 23: 273-308; 321-339. 1911.

with 43 species, the composites with 42 species, the grasses with 55 species, the euphorbias with 7 species, and the orchids with 11 species.—GEO. D. FULLER.

**Cuscuta and its host.**—Investigating the relations existing between certain species of *Cuscuta* and various hosts, particularly with regard to the connection established between the phloem of parasite and that of the host, THODAY<sup>15</sup> concludes that the cell walls of the haustorial phloem degenerate, and are absorbed at the point of contact with the sieve plates of the host, and the naked protoplasm of the parasite applies itself to the sieve area of the host. No connecting threads of protoplasm are found, and the translocation of food substances appears to be by a passive filtration of the contents of the sieve tubes of the host, forced by internal pressure, escaping into the parasite. This and other evidence favors the conclusion that connecting threads of protoplasm occur only between genetically connected cells. The interpretation of the results contains glaring examples of teleology, as we are assured "that the parasite takes much trouble to make use of the host sieve fields as they are, and not to disturb the mechanics of the sieve tubes!"—GEO. D. FULLER.

**The prairies.**—Studying the prairies of Iowa, SHIMEK<sup>16</sup> concludes that they were originally covered with floras of six more or less distinct types, and gives lists of species for each. He reviews carefully the various theories as to the factors causing their development, and gives a rather extensive bibliography of the origin of this type of vegetation, with brief notes on many of the titles. His principal contribution consists in attempts to obtain quantitative determinations of certain of the factors which may have been efficient in causing prairie development. Conspicuous among the data obtained are those of the comparative rates of evaporation at prairie and forest stations of observation. These data, although very scanty, seem to be significant, and lead to the conclusion that "exposure to evaporation as determined by temperature, wind, and topography is the primary cause of the treelessness of the prairies."—GEO. D. FULLER.

<sup>15</sup> THODAY, MARY G. (SYKES), On the histological relations between *Cuscuta* and its host. Ann. Botany **35**: 655-682. 1911.

<sup>16</sup> SHIMEK, B., The prairies. State Univ. Iowa, Lab. Nat. Hist. Bull. **61**: 69-240. pls. 13. 1911.